MEASURING EXPORT COMPETITIVENESS DATABASE (MEC.WORLDBANK.ORG):

WHAT CAN WE LEARN ABOUT RECENT ITALIAN COMPETITIVENESS IN THE GLOBAL CONTEXT?

From a collaboration between Banque de France, World Bank Group, and International Trade Centre

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(*) The views are those of the authors, and not necessarily reflect those of the institutions to which the authors are affiliated.

THE MEASURING EXPORT COMPETITIVENESS DATABASE

METHODOLOGY

A world matrix of imports and exports, with country pair data at the product level

Quarterly data to better control for the timing of any shocks, and we look at changes in value, volume, and prices – to capture real and nominal effects

Decomposition of exports market share growth into three components:

- Exporter's effect or performance: overall capacity to export any good to any market
- The geographic structure of exports: capacity to export to destination markets with an increasing import demand
- The sectoral structure of exports: specialization in the export of products with a dynamic global import demand

Same procedure as for exports is applied to imports, to quantify country specific demand shocks

A weighted variance analysis of annual growth rates, based on various works: Cheptea, Gaulier, & Zignago (2005), Cheptea, Fontagné & Zignago (2010) and Bricongne, Fontagne, Gaulier, Vicard and Taglioni (2011)

WHAT MEC TELLS ABOUT THE COMPETITIVENESS OF ITALY

IMPROVEMENTS IN EXPORT MARKET SHARES PROXY COMPETITIVENESS GAINS, RECENTLY

ITALY, EXPORT GROWTH AND CHANGES IN MARKET SHARES, 2006Q1-2016Q2

EXPORT GROWTH IN RELATION TO WORLD EXPORTS AND CHANGE IN EXPORT MARKET SHARE

Percentage point difference, country growth minus global growth

Change in Italy's Export Growth   Change in World Export Growth
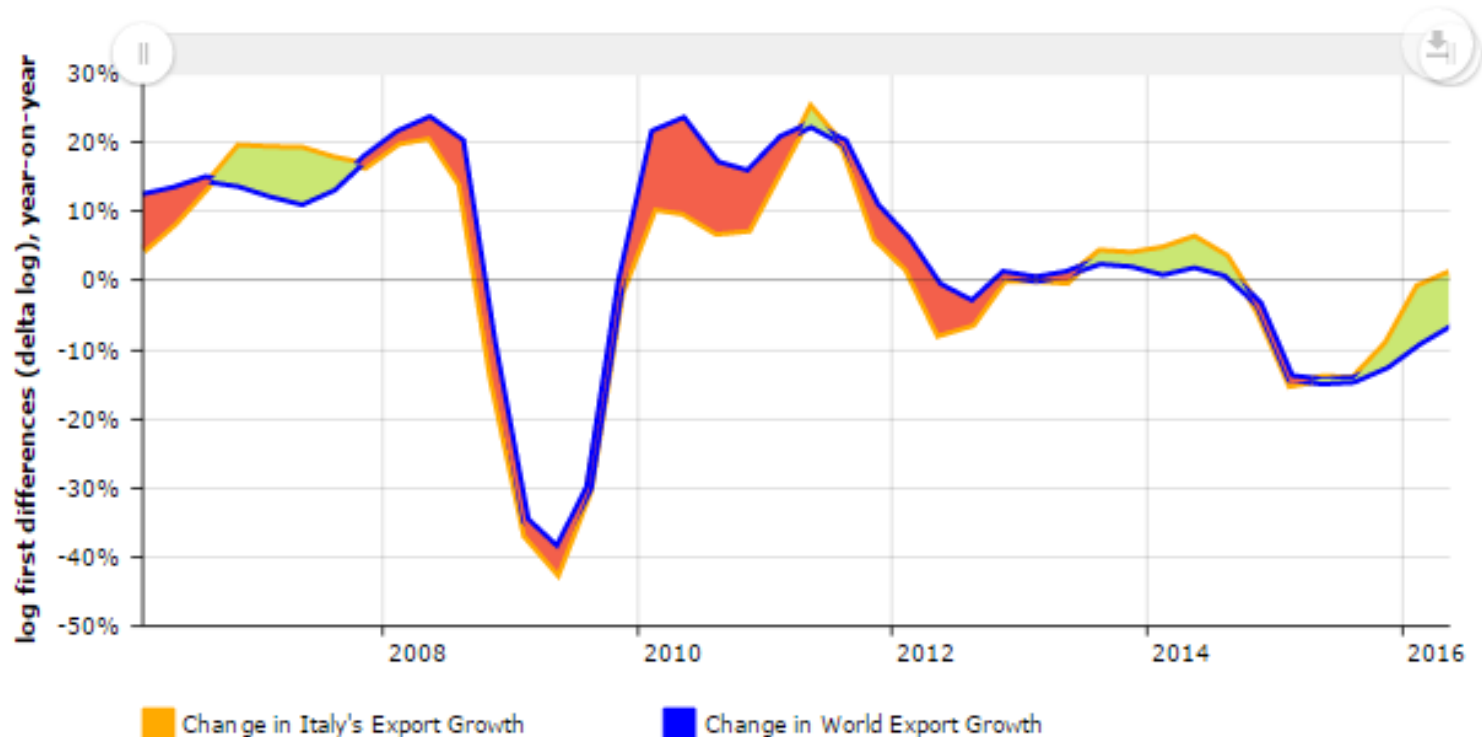
BUT MARKET SHARE CHANGES CAN BE DRIVEN BY SUPPLY SIDE PUSH OR DEMAND SIDE PULL FACTORS

Italy, decomposition of changes in export market shares, 2006q1-2016q2
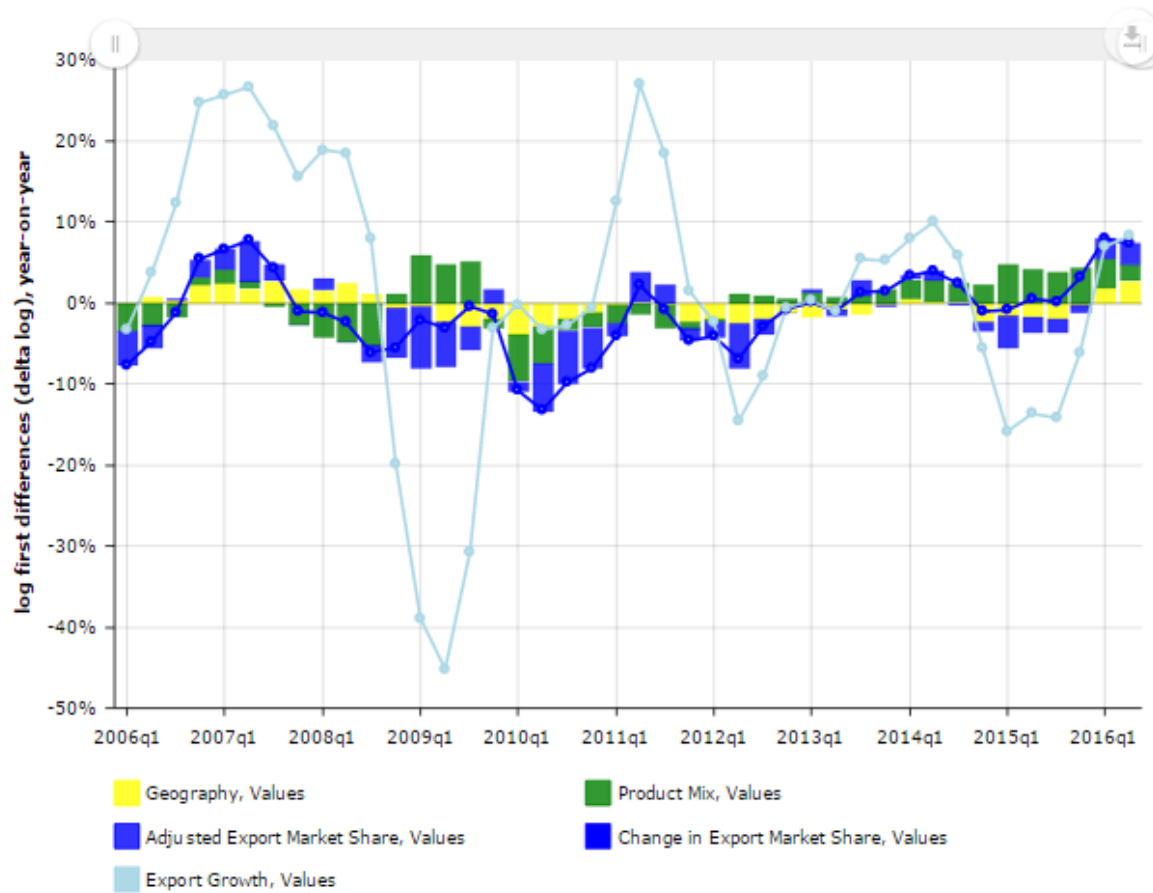
The numbers reported in the tables are log first differences. They represent an approximation of the percentage change in the variable of interest. Strictly speaking, the percentage change in a variable Y at period t is defined as (Y(t)-Y(t-1))/Y(t-1), which is approximately equal to LOG(Y(t)) - LOG(Y(t-1)). The approximation is almost exact if the percentage change is small. For example, a 5% percentage change in delta logs is equal to 4.88%, i.e. ln(1+5%)=0.0488.

ZOOM ON THE LAST THREE YEARS

ITALY, DECOMPOSITION OF CHANGES IN EXPORT MARKET SHARES, 2013Q1-2016Q2
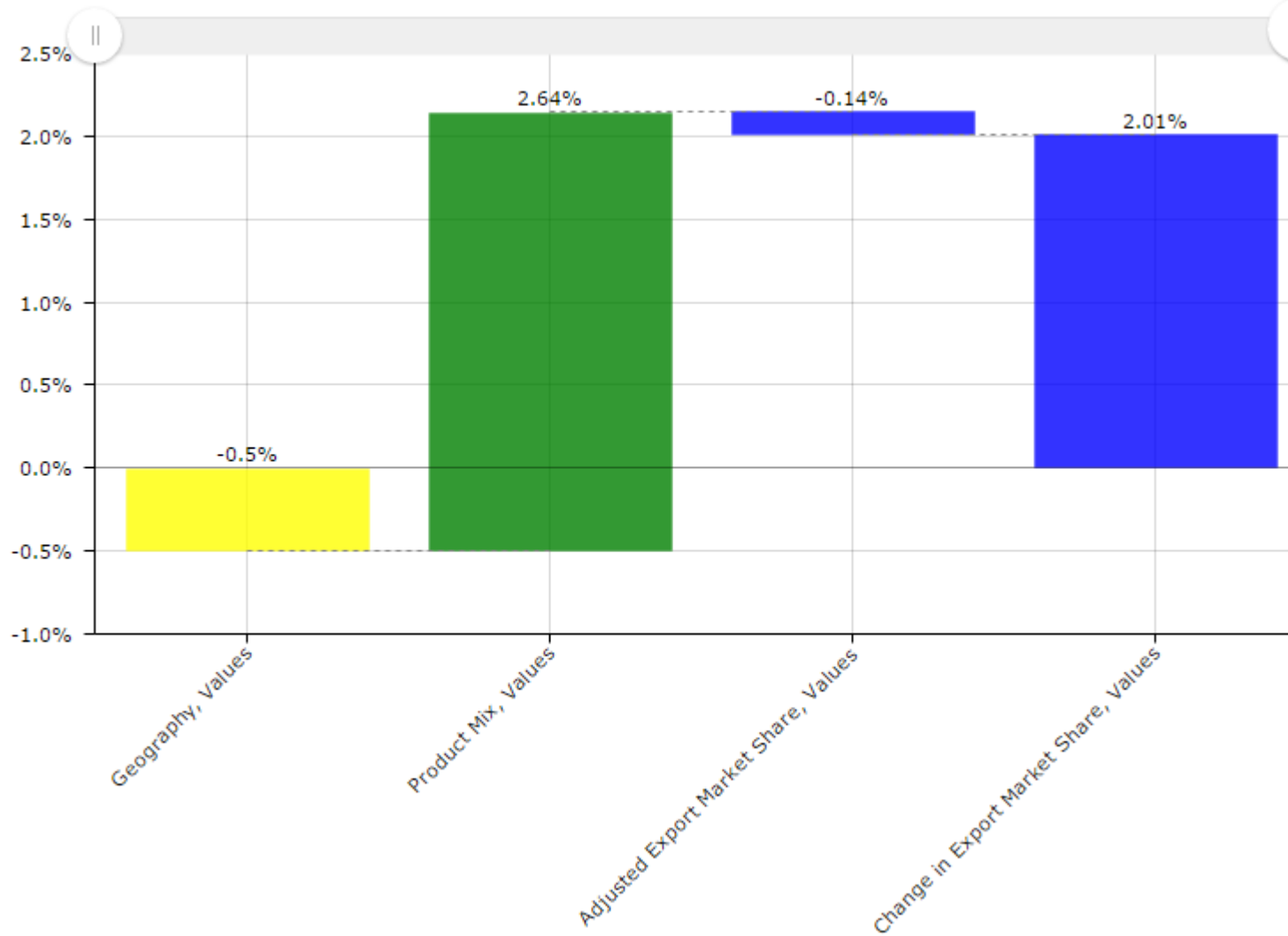
# ITALIAN EXPORT MARKET SHARES SUFFERED FROM WEAK DEMAND FROM FROM THE EUROZONE AND FALLING PRICES FROM REST OF EUROPE

ITALY, PULL FROM MARKET ORIENTATION, 2005Q1-2008Q2
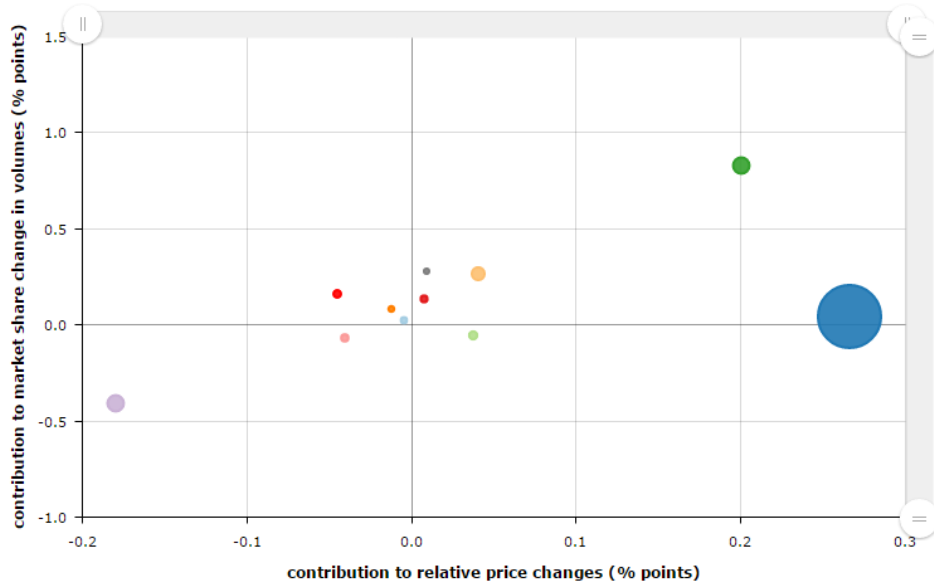
ITALY, PULL FROM MARKET ORIENTATION, 2013Q1-2016Q2
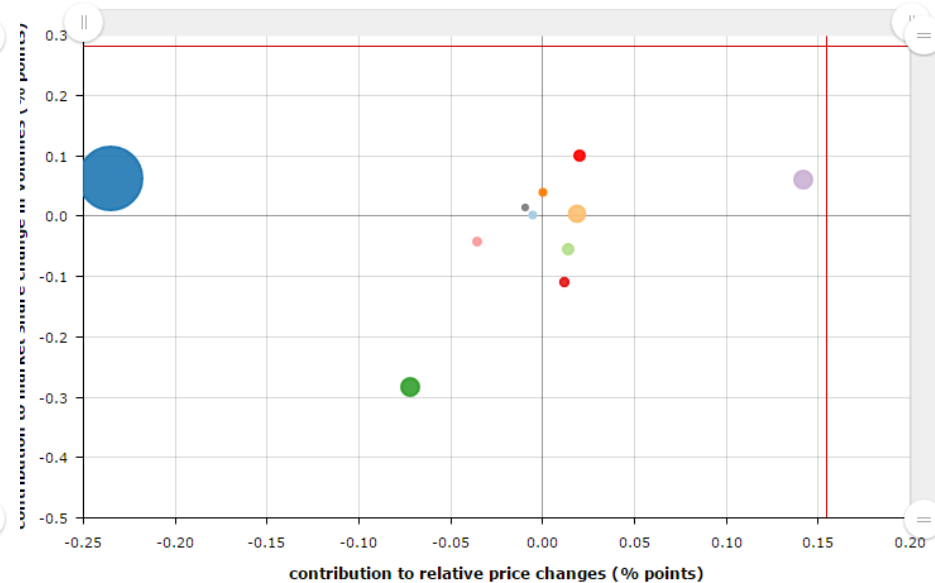
PRICES DROVE PULL FROM PRODUCT SPECIALIZATION…

ITALY, DECOMPOSITION OF CHANGES IN EXPORT MARKET SHARES, 2013Q1-2016Q2
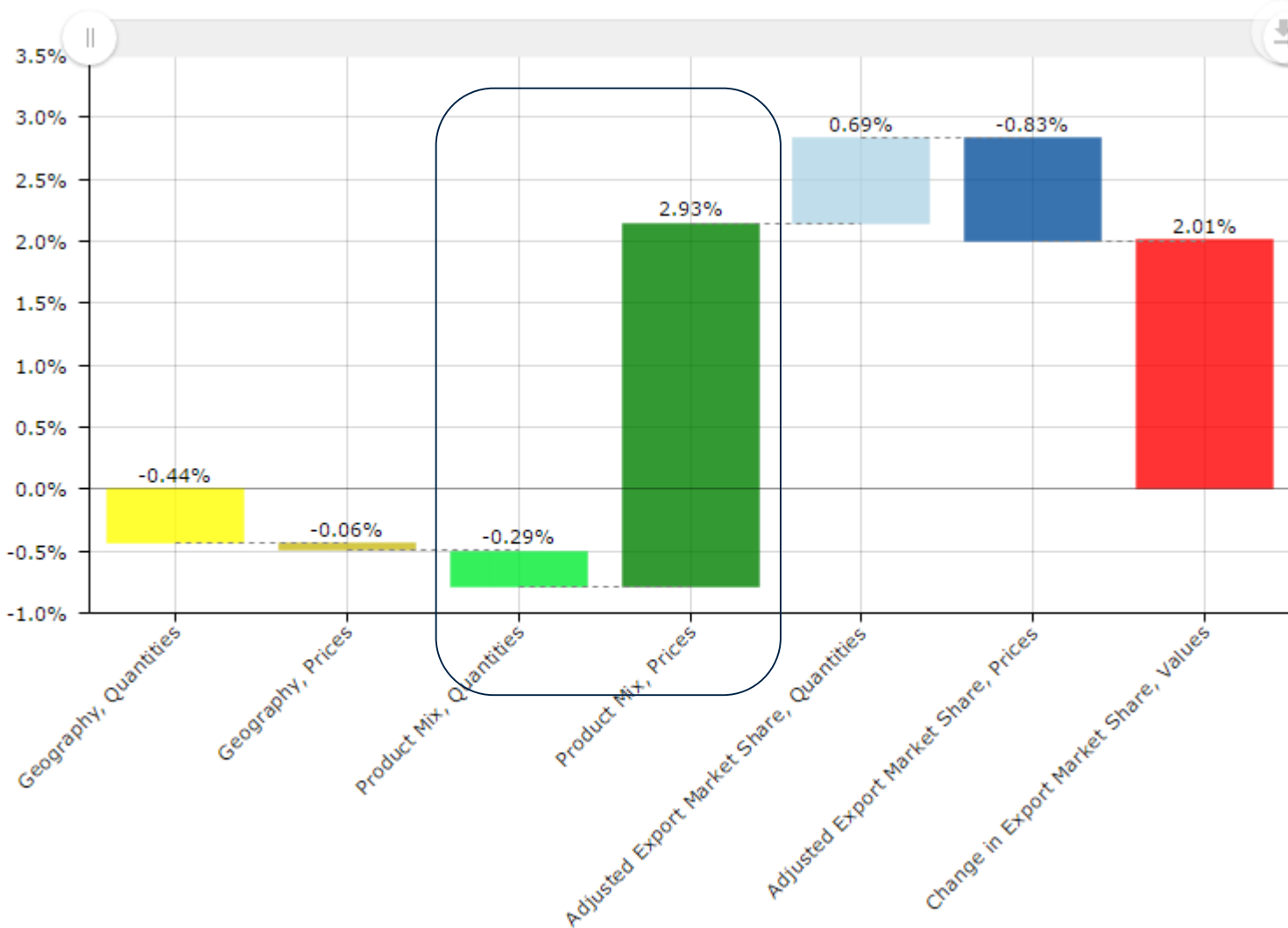
DRIVEN BY MID- AND HIGH-SKILL MID-TECH AND RESOURCE SECTORS AND PRODUCTS

ITALY, PULL FROM PRODUCT MIX AND SECTORAL ORIENTATION, 2013Q1-2016Q2
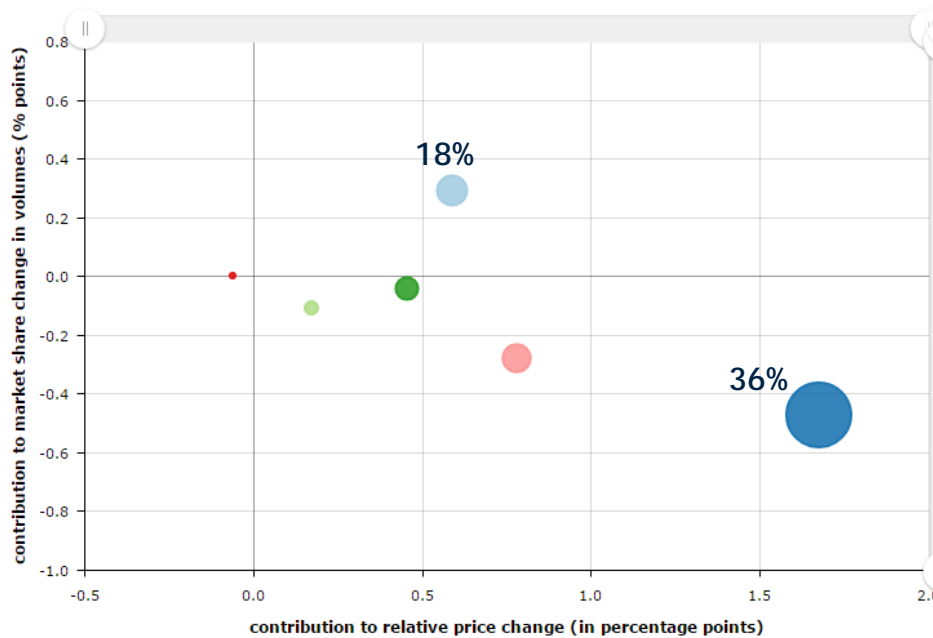
GERMANY, PULL FROM PRODUCT MIX AND SECTORAL ORIENTATION, 2013Q1-2016Q2
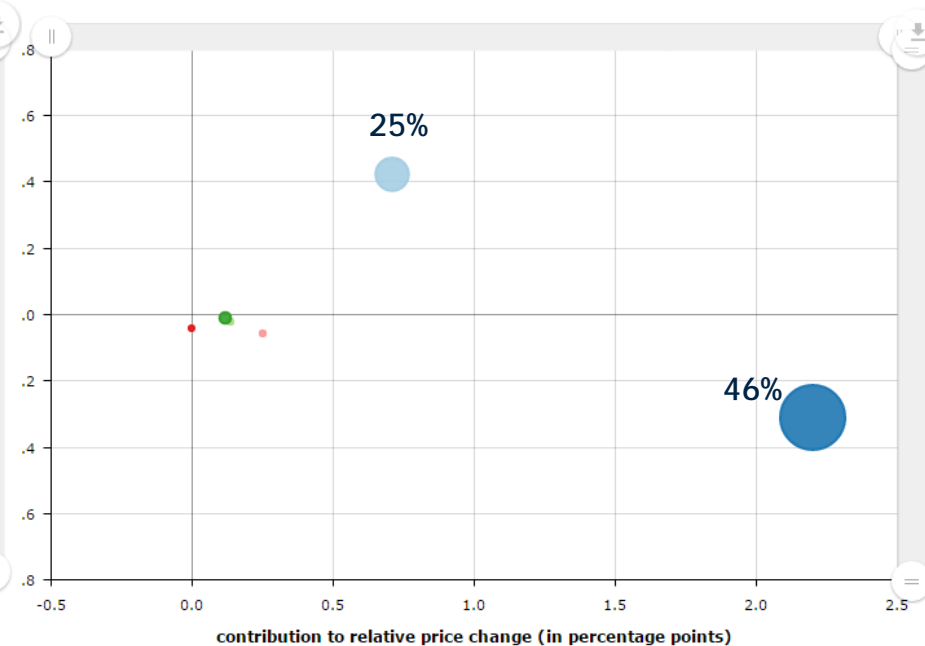
# …BUT SPECIALIZATION IN SOME HIGHLY DEMANDED PRODUCTS (BESIDES FAVORABLE PRICE DYNAMICS) ALSO SUPPORTED ITALY'S GAINS IN EXPORT MARKET SHARES

ITALY, PULL FROM PRODUCT MIX AND SECTORIAL SPECIALIZATION, 2013Q1-2016Q2
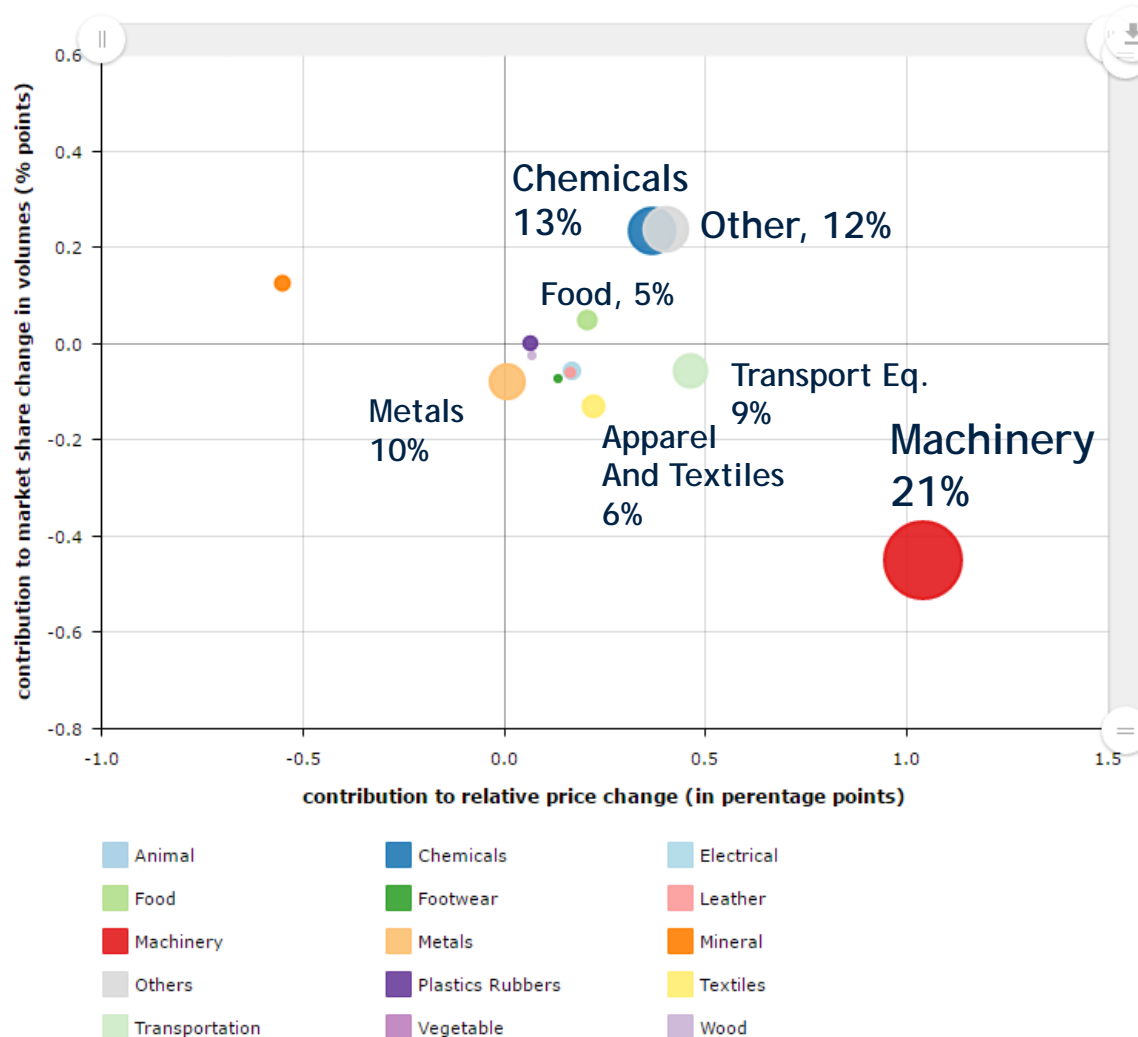
PRICES AND QUANTITY DYNAMICS FOR SUPPLY SIDE PUSH FACTORS DIFFER FROM PRICE DIMENSION OF PRODUCT SPECIALIZATION

ITALY, DECOMPOSITION OF CHANGES IN EXPORT MARKET SHARES, 2013Q1-2016Q2
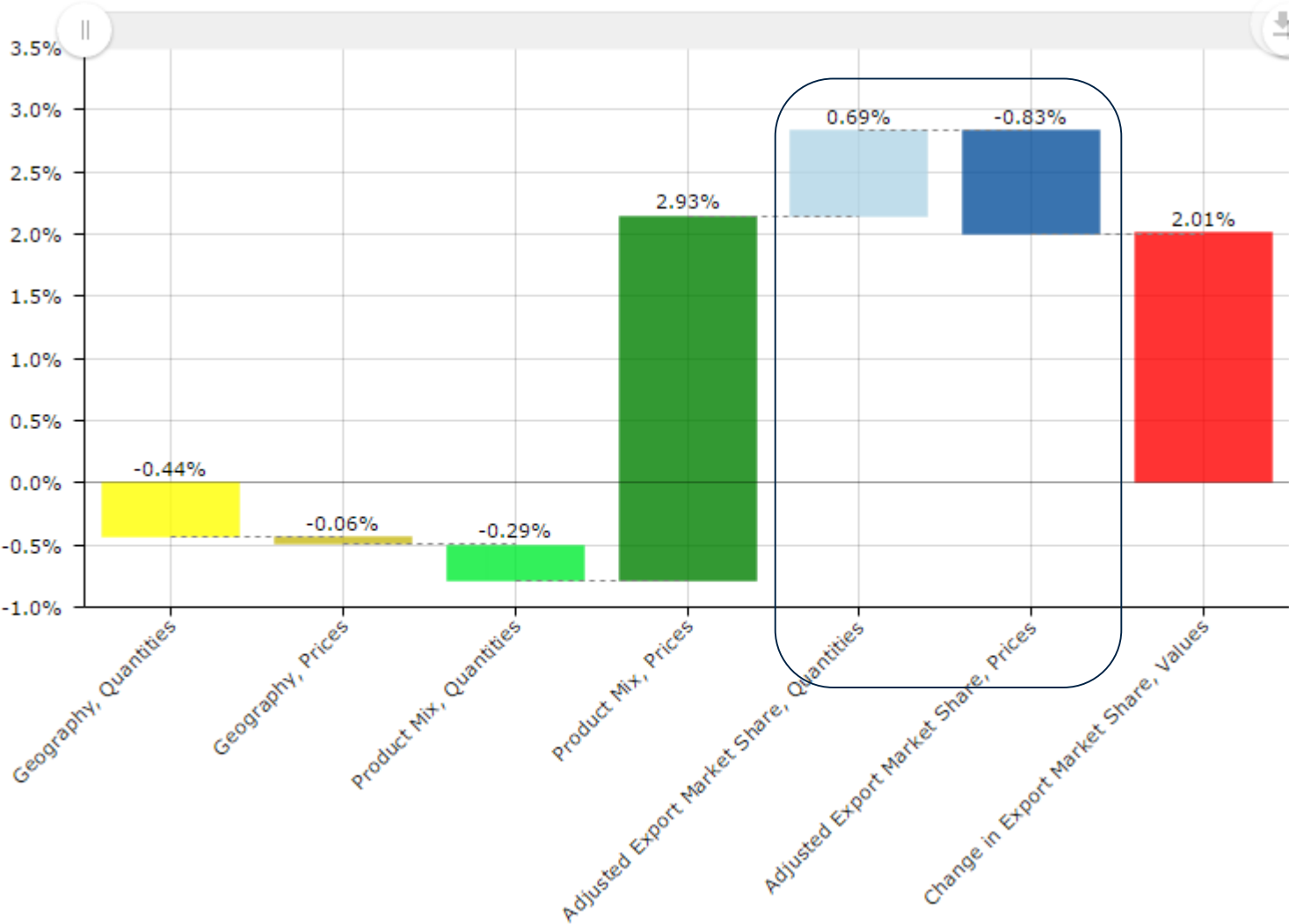
WEAK EURO AREA DEMAND AFFECTED ITALIAN MARKET SHARES BUT EURO DEVALUATION MAY HAVE HELPED

IMPORTS / DEMAND (%) - Quantity			
	Crisis & rebound 08Q4-11Q2	Post-crisis 11Q3-14Q2	Euro Deval 14Q3-15Q2
Germany	-0.4	-2.3	0.9
France	-2.3	-4.2	0.0
Italy	-3.8	-5.7	1.8
Spain	-5.6	-2.9	4.8
Euro Area	**-2.3**	**-2.6**	**1.1**

IMPORTS / DEMAND (%) - Unit Values			
	Crisis & rebound 08Q4-11Q2	Post-crisis 11Q3-14Q2	Euro Deval 14Q3-15Q2
Germany	-1.2	-0.1	-3.4
France	-0.4	0.5	-3.5
Italy	-1.1	-1.0	-3.9
Spain	-1.7	-0.8	-3.1
Euro Area	-1.1	-0.4	-3.5

ITALY AND SPAIN MORE ABLE THAN GERMANY AND FRANCE TO PROFIT OF WEAK EURO

The 4 large Euro Areas economies: All in one chart, 2014Q3-2016Q2
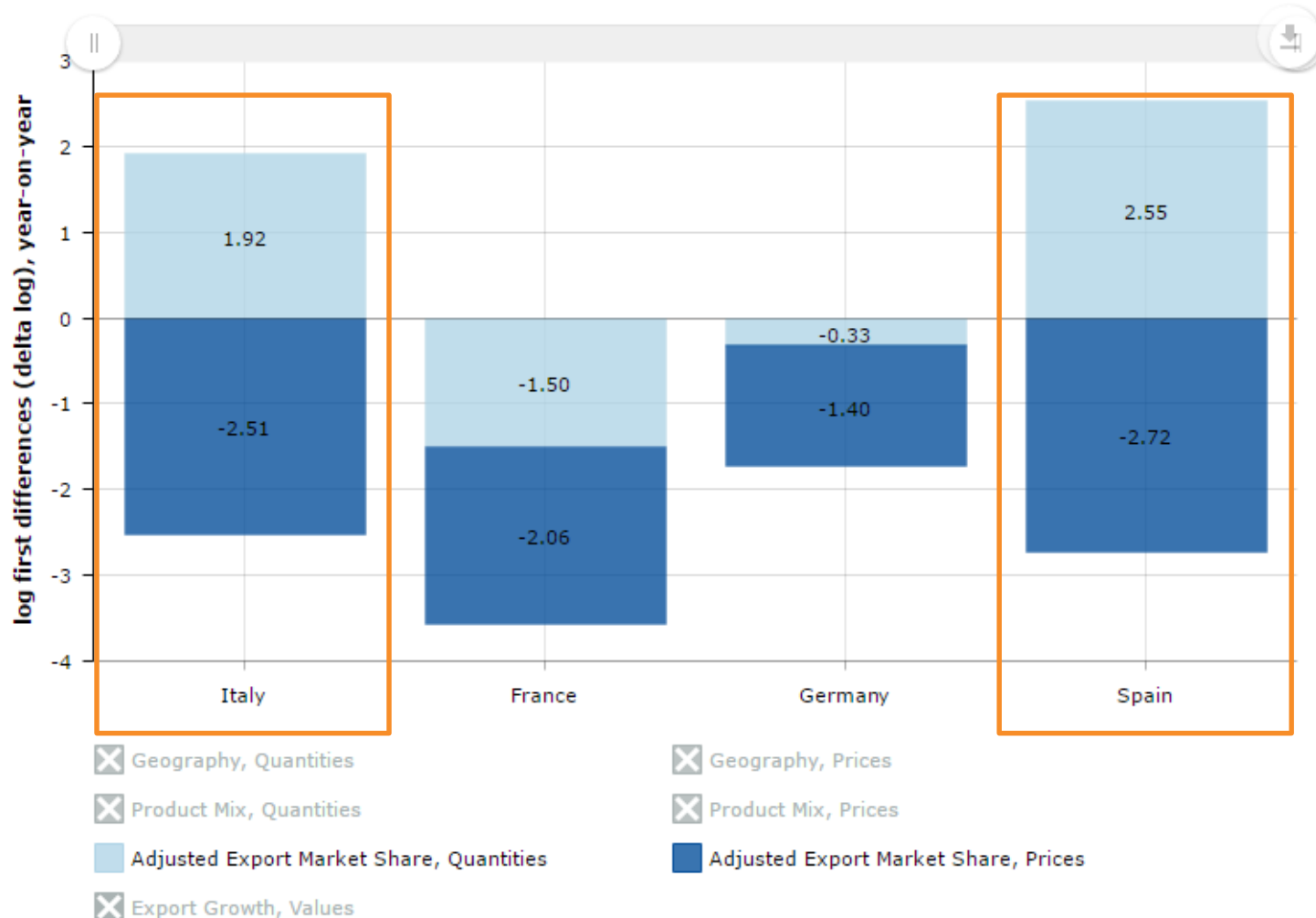
ADJUSTED MARKET SHARE CORRELATIONS – TOP 100 EXPORTERS (AVG. 2008Q1-2015Q2). VALUES DECOMPOSITION
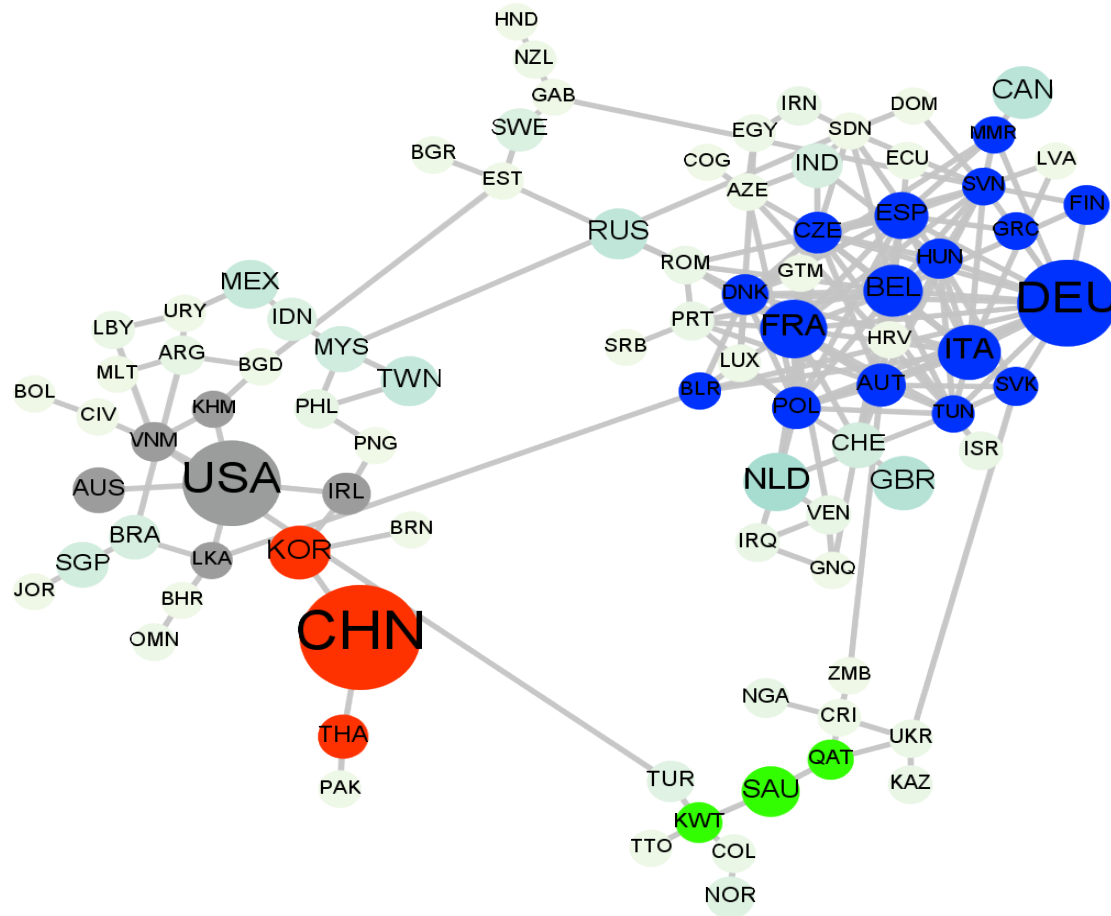
…CONCERNING PERFORMANCE MEASURED IN VOLUMES

ADJUSTED MARKET SHARE CORRELATIONS – TOP 100 EXPORTERS (AVG. 2008Q1-2015-Q2). QUANTITIES DECOMPOSITION
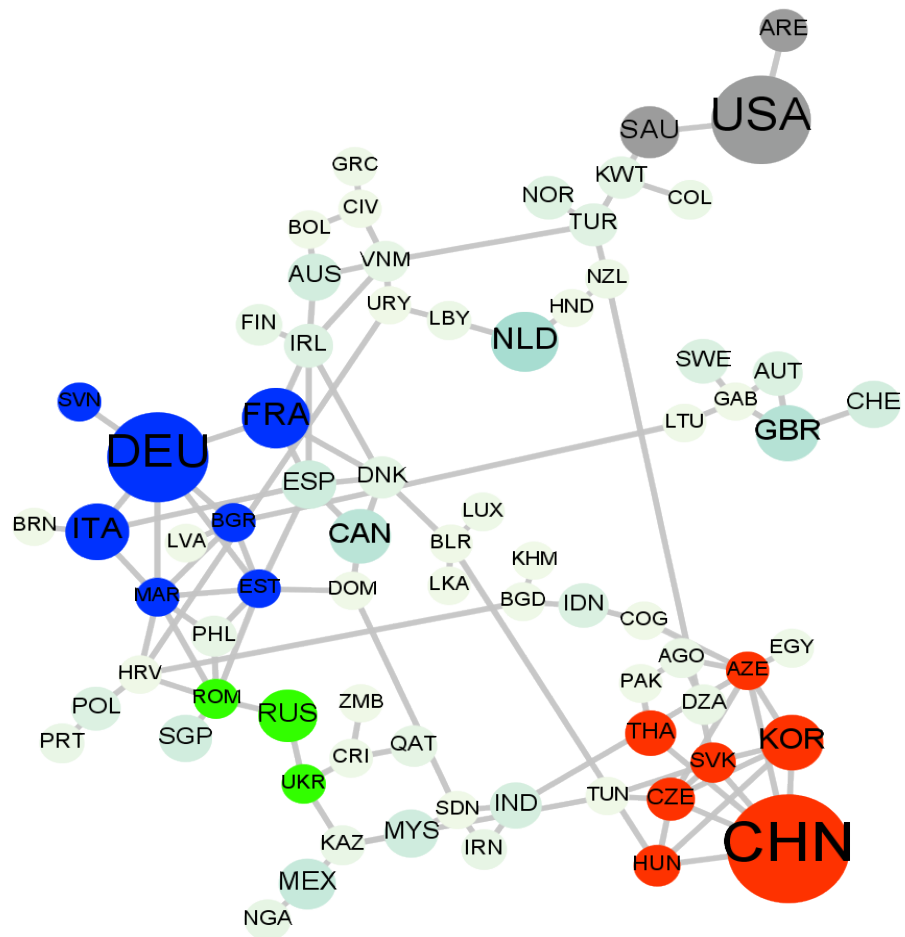
…BUT POSSIBLY STRONGLY INFLUENCED BY SHARING A COMMON CURRENCY

ADJUSTED MARKET SHARE CORRELATIONS – TOP 100 EXPORTERS (AVG. 2008Q1-2015-Q2). PRICE DECOMPOSITION
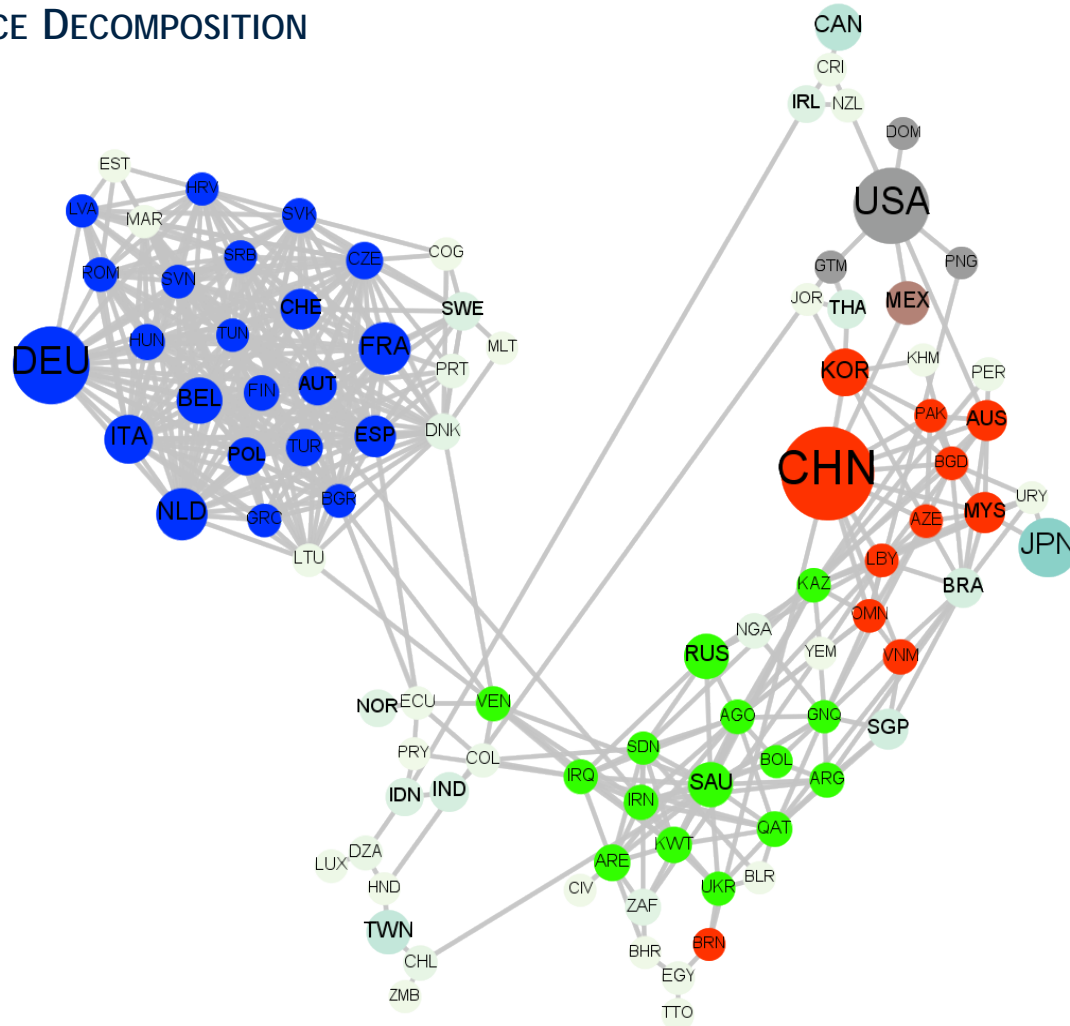
ZOOMING OUT OF THE CASE OF ITALY – INTERDEPENDENCES GO BEYOND THE REGIONAL SCOPE

WHAT CHINA DOES MATTERS GLOBALLY: GROWTH OF GLOBAL TRADE AND GROWTH OF CHINA'S ADJUSTED MARKET SHARE
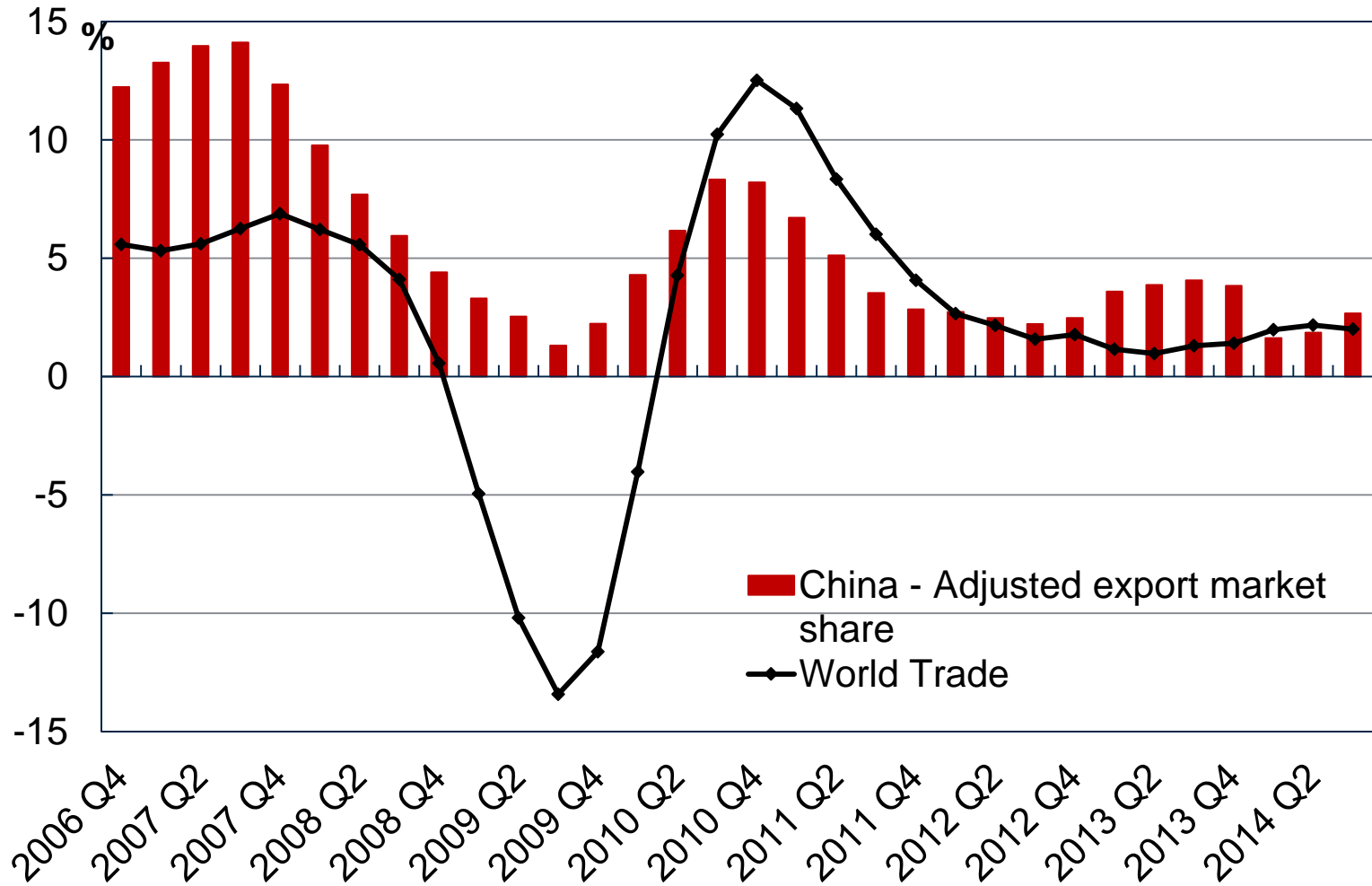
SUPPLY SIDE DEVELOPMENTS IDIOSYNCRATIC TO CHINA, (NET OF OTHER EFFECTS) NOT ONLY CONTRIBUTE TO EXPLAIN GLOBAL TRADE SLOWDOWN…

THE SUPPLY-SIDE: COUNTRIES' CONTRIBUTIONS TO CHANGES IN EXPORTS, MEASURED BY "ADJUSTED" EXPORT MARKET SHARES, QUANTITIES

	Export growth			Adjusted market share Contribution		
	Pre-crisis 06Q1-08Q3	Crisis & rebound 08Q4-11Q2	Post-crisis 11Q3-14Q3	Pre-crisis 06Q1-08Q3	Crisis & rebound 08Q4-11Q2	Post-crisis 11Q3-14Q3
Euro Area	1.8	-0.3	0.4	1.4	0.1	0.4
United States	0.3	0.1	0.2	0.2	-0.1	0.1
China & Honk Kong	1.3	0.4	0.3	1.7	0.6	0.6
Other developed	1.1	-0.1	0.3	0.8	-0.5	0.1
Rest of the World	0.9	0.7	0.6	1.3	0.6	0.7
World	**5.4**	**0.7**	**1.8**	**5.4**	**0.7**	**1.8**

THE DEMAND-SIDE: COUNTRIES' CONTRIBUTIONS TO CHANGES IN IMPORTS, MEASURED BY "ADJUSTED" IMPORT MARKET SHARES, QUANTITIES

	Import growth			Adjusted market share Contribution		
	Pre-crisis 06Q1-08Q3	Crisis & rebound 08Q4-11Q2	Post-crisis 11Q3-14Q3	Pre-crisis 06Q1-08Q3	Crisis & rebound 08Q4-11Q2	Post-crisis 11Q3-14Q3
Euro Area	1.5	-0.3	0.0	1.7	-0.5	-0.1
United States	0.1	-0.2	0.1	0.0	-0.3	0.1
China & Honk Kong	1.0	0.9	0.6	0.8	1.0	0.8
Other developed	0.8	-0.2	0.1	0.7	-0.1	0.1
Rest of the World	2.1	0.5	0.9	2.3	0.7	0.9
World	**5.4**	**0.8**	**1.8**	**5.4**	**0.8**	**1.8**

…BUT ALSO INFLUENCE GLOBAL PRICES

CHINA'S EXPORT SPECIALIZATION AND CONTRIBUTION TO WORLD IMPORT PRICES AND VOLUMES (2006Q1-2008Q3)
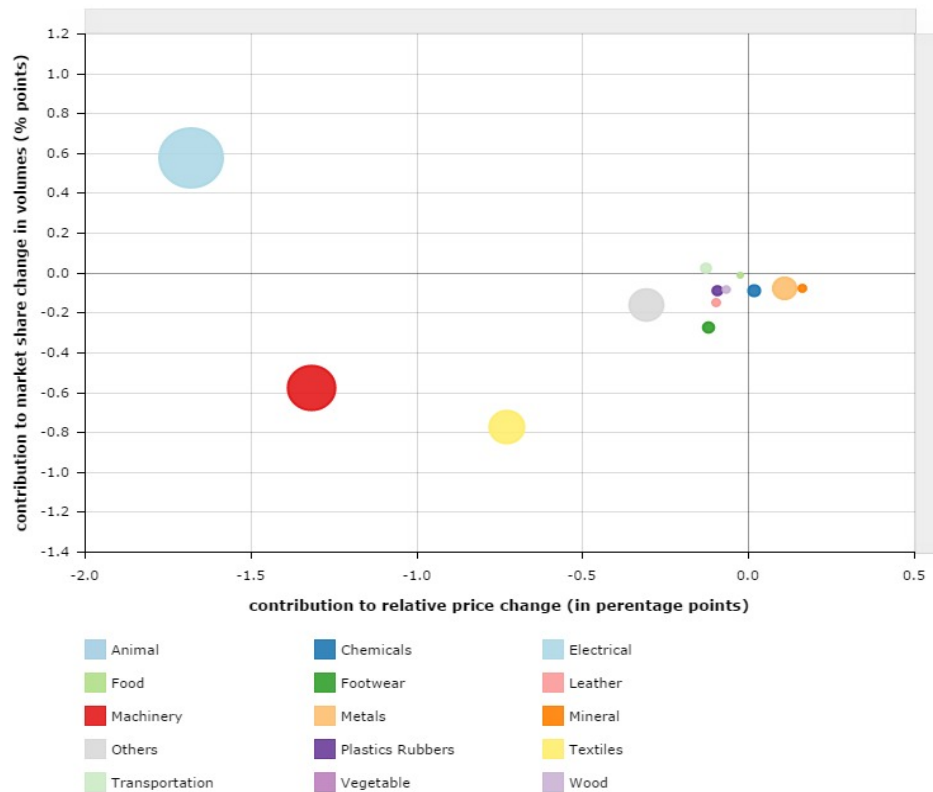
CHINA'S EXPORT SPECIALIZATION AND CONTRIBUTION TO WORLD IMPORT PRICES AND VOLUMES (2011Q3-2015Q2)
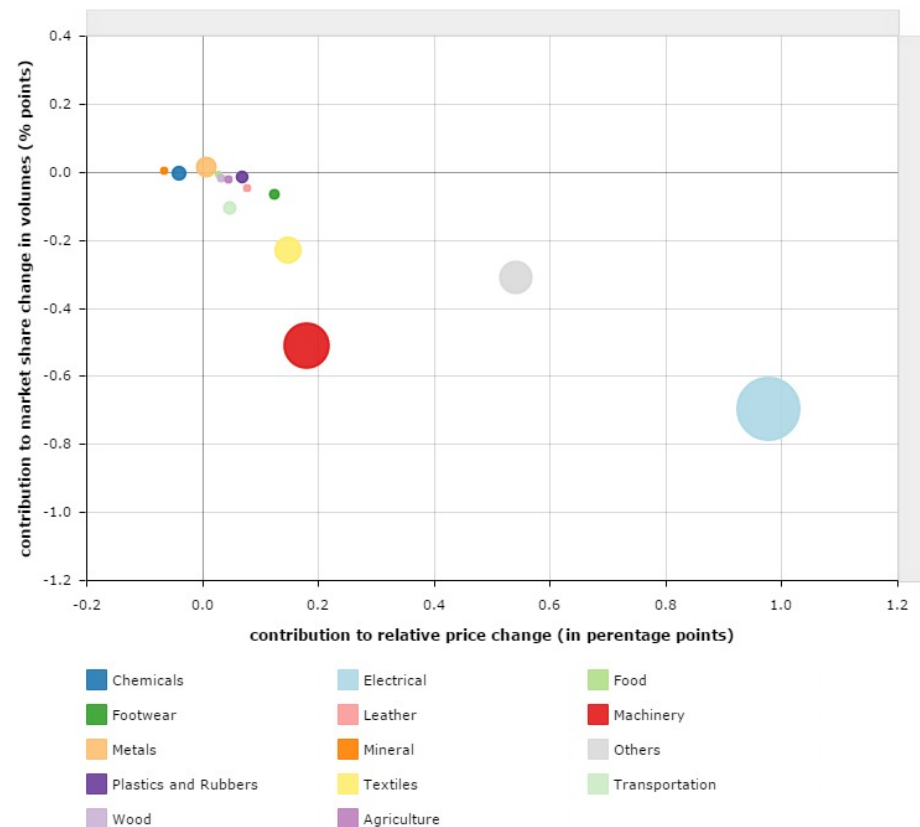
AN INTERESTING SIDE FACT: CHINA NEVER SPECIALIZED IN LOW VALUE EXPORTS, BUT RATHER CHINA'S SPECIALIZATION HAD A DAMPENING EFFECT ON THE WORLD PRICES OF ITS EXPORTS WHEN ITS GROWTH STRATEGY WAS PURELY EXPORT DRIVEN

- <u>Trade acceleration phase</u>.
    - Initial supply-side shock when China started exporting.
    - Chinese domestic demand, including for its own products, low over a prolonged period of time and a large production base compared to world totals
    - Effect: China generated a large export surplus that
        - drove down the world price for goods in which it specialized; and
        - reinforced specialization patterns based on Ricardian comparative advantages and the reallocation of global demand for those products towards Chinese exports (often from domestic supply or regional exports).

- <u>Trade deceleration phase</u>
    - Rebalancing of Chinese growth towards domestic demand, but continued imports.
    - Downward pressure on global price for products in which China specializes is lower, and so is the rate of reallocation of market shares in favor of imports from China

CONCLUSION

The application of the database to Italy has allowed an analysis of the main drivers of Italian export competitiveness

It is suggesting that in the recent years Italy has gained market shares, in spite of unfavorable product effects.

The main drag to its export performance was due to unfavorable price effects on the supply side.

Meanwhile the devaluation of the euro may have offset a weak demand from some of its main export partners

Findings confirm Krugman's thesis on the importance of supporting EA demand to help EA countries to recover from the crisis years

Besides looking at country specific analyses from wide across the world, the database also allows to look at systemic issues such as the global trade slowdown. See Gaulier et al (2015) , chp. 5 in Hoekman eds. "The Global Trade Slowdown: A New Normal?"

Thank you

ANNEX

METHODOLOGY

ECONOMETRIC SHIFT-SHARE DECOMPOSITION

Decomposition of exports market share growth into three components:

- exporter's effect or performance: overall capacity to export any good to any market
- the geographic structure of exports: capacity to export to destination markets with an increasing import demand
- the sectoral structure of exports: specialization in the export of products with a dynamic global import demand

Same procedure applied to imports allows to also quantify country specific shocks

A weighted variance analysis of annual growth rates, following Cheptea, Gaulier, & Zignago (2005), Cheptea, Fontagné & Zignago (2010) and Bricongne et al. (2011)

ECONOMETRIC SHIFT-SHARE DECOMPOSITION

Step 1: Computation of Mid-Point Growth Rates.

- For a country i exporting a value x to a country c of product k at time t, the mid-point growth rate is defined as follows:

$$g_{ickt} = \frac{x_{ickt} - x_{ick(t-1)}}{\frac{1}{2}\left(x_{ickt} - x_{ick(t-1)}\right)}$$

- weight attributed to each flow g_{ickt} is given by the relative share of the flow in total exports, where total refers to the exports of the whole sample of countries:

$$s_{ickt} = \frac{x_{ickt} - x_{ick(t-1)}}{\left(\sum_c \sum_i \sum_k x_{ickt} - x \sum_c \sum_i \sum_k x_{ick(t-1)}\right)}$$

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ECONOMETRIC SHIFT-SHARE DECOMPOSITION

Step 1: Computation of Mid-Point Growth Rates.

- *Quarter-on-quarter* growth rate of the total value of world exports is given by summing each individual flow g_{ickt} weighted by s_{ickt}:

$$G_t = \sum_c \sum_i \sum_k s_{ickt} * g_{ickt}$$

- G is monotonically related to the conventional growth rate measure, and it represents a very good approximation of the latter except for extremely high growth rates. For bigger growth rates the two growth measures are linked by the following identity:

$$\sum_{i,c,k} G_{ick}^t = \sum_{i,c,k} g_{ick}^t * s_{ick}^t \approx \ln\left(\frac{\sum\limits_{i,c,k} x_{ick}^t}{\sum\limits_{i,c,k} x_{ick}^{t-1}}\right)$$

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ECONOMETRIC SHIFT-SHARE DECOMPOSITION

Step 2: Fixed effects regression

- ANOVA methodology to decompose export (import) growth in a sectoral effect, a geographical effect and a pure competitiveness effect.

- Specifically, we regress the mid-point growth rate on three sets of fixed effects, i.e. exporter, importer and sector/product fixed effects, here denoted with the letter *f* by means of a weighted OLS estimation.

$$g_{ickt} = \alpha + \sum_i \phi_i f_i + \sum_c \beta_i f_i + \sum_k \gamma_k f_k + \varepsilon_{ickt}$$

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ECONOMETRIC SHIFT-SHARE DECOMPOSITION

Step 2: Fixed effects regression

- We normalize the effects so to quantify them as deviations from the average growth rate of exports (imports) for the overall sample in the dataset, i.e. in our case this roughly corresponds to world export growth.

$$\phi_i^t = \hat{\alpha}^t + \hat{\phi}_i^t + \sum_c s_{ic}^t \hat{\beta}_c^t + \sum_k s_{ik}^t \hat{\gamma}_k^t$$

$$\ln\left(\frac{\sum_{c,k} x_{ick}^t}{\sum_{c,k} x_{ick}^{t-1}}\right) \approx \sum_{c,k} G_{ick}^t = \sum_{c,k} g_{ick}^t * s_{ick}^t = \phi_i^t + \sum_c s_{ic}^t \tilde{\beta}_c^t + \sum_k s_{ik}^t \tilde{\gamma}_k^t$$

$$\tilde{\beta}_c^t = \hat{\beta}_c^t - \sum_c s_{ic}^t \hat{\beta}_c^t \qquad\qquad \tilde{\gamma}_k^t = \hat{\gamma}_k^t - \sum_k s_{ik}^t \hat{\gamma}_k^t$$

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ECONOMETRIC SHIFT-SHARE DECOMPOSITION

Step 3: Computation of price and quantity effects

The decomposition is further extended to separate quantity from price effects to capture the role played by price adjustments in the period. We follow the procedure used in Bricongne et al (2011), which uses a Tornqvist index to carry out the decomposition (only the intensive margin can be taken into consideration when disentangling price from quantity effects).

We decompose values into quantities and unit values. we compute average price changes, for total exports and vis-à-vis individual trade partners, by means of weighted averages of the elementary price changes. Elementary flows are decomposed as follows:

$$d \ln(value)_{ick,\frac{t}{t-1}} = d \ln(quantity)_{ick,\frac{t}{t-1}} + d \ln\left(\frac{value}{quantity}\right)_{ick,\frac{t}{t-1}}$$

Unit value indices differ from price indices since their changes may be due to price and (compositional) quantity changes. Bias in unit value indices are attributed to changes in the mix of goods exported and to the poor quality of recorded data on quantities. More the data is disaggregated, more this bias is reduced.

Gaulier, Santoni, Taglioni & Zignago

WAS THERE A ROLE FOR INTERNAL DEVALUATIONS? PRICES DYNAMICS REGARDING SUPPLY SIDE PUSH FACTORS DIFFER ACROSS EA COUNTRIES

PRICE DECOMPOSITION OF CHANGES IN EXPORT MARKET SHARES, 2013Q1-2016Q2